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(71) Applicants (for all designated States except US): SAUDI ARABIAN OIL COMPANY [SA/SA]; R-3296, Administration Building, Dhahran 31311 (SA). ARAMCO SERVICES COMPANY [US/US]; 9009 West Loop South, Houston, TX 77096 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): AL-MISFER, Adel, S. [SA/SA]; Box 755, Udhailiyah, Al-Hassa (SA).

(74) Agent: NATOLI, Anthony, J.; Abelman, Frayne & Schwab, 150 East 42nd Street, New York, NY 10017-5612 (US).

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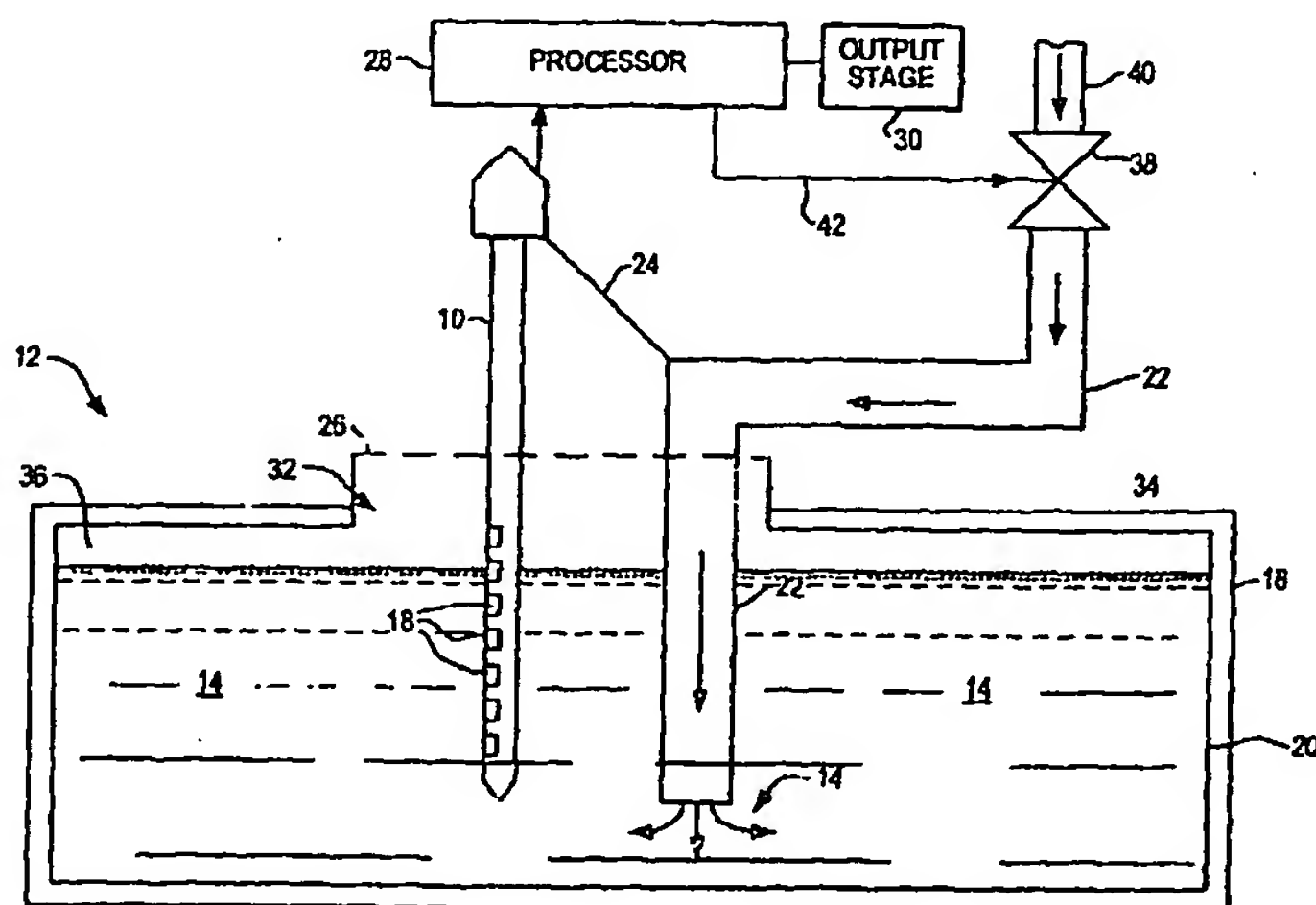
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(54) Title: MEASUREMENT OF MOLTEN SULFUR LEVEL IN RECEPTACLES



of molten sulfur (14) into the tank (16).

(57) Abstract: A portable temperature sensing probe (10) having a plurality of thermocouples (18) is inserted into a tank (16) mounted on a truck or other receptacle at the time of loading a hot liquid, e.g., molten sulfur (14). The probe and at least a portion of the associated wiring or leads are attached to the loading pipe (22) and/or discharge nozzle, and the probe is inserted into the interior of the tank before the molten sulfur (14) is discharged. The signals from the plurality of thermocouples (18) are amplified and the corresponding temperature information is transmitted to a display and control device (30). Due to the significant differential between the temperature of the rising molten sulfur (14) and the vapors in the tank overhead space (26), the signals generated indicate which of the thermocouples (18) are in contact with molten sulfur (14) or the vapor zone (32). The generated signals adjust the shut-off valve (38) that controls the flow

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/10177

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B67C 003/28; G01F023/04; G01K003/14  
US CL : 374/116, 140, 166, 178, 179, 185; 141/198; 73/295

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : Please See Continuation Sheet

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
USPAT, USPG-PUB, Derwent

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 6,202, 486 B1 (KEMP, J.W.) 20 March 2001(20.03.2001), figure 6, column 3, lines 36-52.	1-4, 7 ----- 5-6, 8-23
Y	US 6,098,457 A (POOLE, D.L.) 08 August 2000 (08.08.2000), column 3, lines 2-9, figure 5.	5-6
Y	US 5,178,009 A (AREKAPUDI, A K. et al.) 12 January 1993 (12.01.1993), abstract.	8-9, 14-15
Y	US 4,915,145 A (SCHIRMACHER, M) 10 April 1990 (10.04.1990), column 3, lines 36-52; column 5, lines 9-14.	10-13, 16-23



Further documents are listed in the continuation of Box C.



See patent family annex.

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Mail Stop PCT, Attn: ISA/US  
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Facsimile No. (703) 305-3230

Authorized officer

Diego F. F. Gutierrez

Telephone No. (571)272-2245

Jean Proctor  
Paralegal

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**Continuation of B. FIELDS SEARCHED Item 1:**

B67C 003/04, 003/22; G01F 023/24; H01C 001/02 and U.S. 374/116, 140, 166, 178, 179, 185, 110, 139; 141/198, 192; 73/295, 292, 290R; 136/234, 231, 230; 338/28, 22R, 22SD, 25; 222/64